

**ABSTRACT**

The present invention relates to a system and method for optimal clustering of master-slave ad-hoc wireless network for minimizing the number of masters and thereby the number of communication hops. It comprises assigning master or slave status to each node and connecting slave nodes to master nodes to form subgroups based on defined optimization parameters and the constraints and characteristics of the network. After that said subgroups are interconnected to form a single cluster either by connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup where possible, or by connecting two adjacent master nodes together or by converting a slave node at the boundary to a master and linking it to the slave nodes or master nodes in the adjacent subgroups.